



# Raw Milk Cheese

IEHA

Fall Conference

September 28, 2009

# Indiana State Board of Animal Health

## Programs

Cattle, Swine, Cervids

Avian

Companion Animals

Meat and Poultry

Animal Health

Dairy

Premise ID

Legal/Enforcement



## Dairy Division

Originally with ISDH

In same Bureau with Meat and Poultry and  
Retail/Wholesale Foods

Moved with Meat and Poultry to ISBOAH in 1994

Currently located in Indy west side

Regulate fluid milk, cheese, ice cream, butter,  
etc.



# Dairy Division Organization

Enforcement	12 field staff
Farm	2 + 1 part time
Plant	1
Combined	8
Survey	1 + 1 part time
Laboratory Evaluation	1



Enforcement	Inspections
Farm	6 months
Sample raw milk	monthly
Plants	3 months
Pasteurizer tests	3 months
Sample products	monthly/quarterly
Single-service plants	3 months
Truck wash	3 months



Survey      Farms, Plants, Single-Service Plants  
                 2 years  
                 Substantial compliance with the PMO

FDA Milk Safety      Farms, Plants, Single Service Plants  
                 3-5 years  
                 Substantial compliance with the PMO

NCIMS      Rule making body (PMO)  
                 Meets every 2 years

Rules:      IC 15; IAC 345, article 8; PMO; CFR's (21  
                 CFR 131, 133, 135; 7 CFR 58)  
                 <http://www.in.gov/boah/2493.htm>



Farms (8-26-09)	1365 Grade A
	329 Non-Grade A
Plants	14 Grade A (1 farmstead)
Non-Grade A plants)	22 (6 are farmstead cheese
Single-Service plants	10
Cow shares ?	
Pet Food manufacturers ? (Cottage cheese, yogurt)	

State Chemists Office











ON  
POWER  
OFF

VACUUM

SEAL



# Cheese

72 types with Standard of ID    Some are modifications of other cheeses (fresh vs. medium Asiago, Low sodium Colby)

Approximately 46 can be made using raw milk.



# Raw Milk Cheeses

## Aging

Must be aged for at least 60 days at temperatures above 35°F

Must have an indicating and recording thermometer for the aging room

Must keep a record of date aging began and ended. This may be included on the make record.



# Labeling

In addition to the normal required labeling:

Must be labeled with the statement “Cured or Aged for 60 days at a temperature not less than 35°F”.

Must be labeled with a lot number. The lot number must be assigned to a batch when the cheese making process is started and that lot number stays with the batch through packaging and sale.



Why is this legal?

What is pasteurization? Batch – A minimum of 145°F for at least 30 minutes in a properly designed and operated vat pasteurizer.

Designed to create 5 Log reduction in vegetative pathogens.

Not a sterilization.

Pasteurized milk is still a potentially hazardous product, problems during pasteurization or post-past. contamination can be BIG problems.







# Other means to keep pathogen numbers in check

Low pH

Low water activity

Competition





# Competition

In theory the culture(s) will out compete (grow) any pathogens keeping the pathogen numbers in check.

Additionally, the chosen culture(s) are ones that convert lactose into lactic acid. The increase in lactic acid reduces the pH further inhibiting vegetative pathogens. The acid and the process heat also change proteins in the milk forming the curd.



The 60 day minimum aging period is to give the culture additional time to overgrow any pathogens.



## Problems

*Listeria monocytogenes* and *Staphylococcus aureus* have been known to survive the aging process.

## Actual case in Indiana.

2005, Farmstead cheese, (non-Grade A) hand milking (5 cows), 100,000 – 1,000,000 cfu staph A in cheeses. Not found on equipment. Found in raw milk directly from cows. Ended up selling plant and name.





2008, Farmstead cheese, hand milking,  
10,000 – 300,000 cfu staph A in cheese.

Not on equipment or raw milk, came from  
farmer's hands.

2009, Farmstead cheese, elevated E. coli  
counts.

# Cheese storage temps

Hard – refrigerate but may store at room temp for 1-2 hours at a time and then re-refrigerate.

Soft – refrigerate



## USDA E 1.15 Storage of finished product.

- (b) Refrigerated storage. The finished product shall be placed on shelves, dunnage, or pallets and properly identified. **It shall be stored under temperatures that will best maintain the initial quality.** The product shall not be exposed to anything from which it might absorb any foreign odors or be contaminated by drippage or condensation.



## FDA Sec. 110.80 Processes and controls.

(3) Food that can support the rapid growth of undesirable microorganisms, particularly those of public health significance, shall be held in a manner that prevents the food from becoming adulterated within the meaning of the act.





## FDA Sec. 110.80 Processes and controls.

Compliance with this requirement may be accomplished by any effective means, including:

Maintaining refrigerated foods at 45° F (7.2° C) or below as appropriate for the particular food involved.

Maintaining frozen foods in a frozen state.

Maintaining hot foods at 140° F (60° C) or above.

Heat treating acid or acidified foods to destroy mesophilic microorganisms when those foods are to be held in hermetically sealed containers at ambient temperatures.



## FDA Sec. 110.80 Processes and controls.

(4) Measures such as sterilizing, irradiating, pasteurizing, freezing, refrigerating, controlling pH or controlling **A<sub>w</sub>** that are taken to destroy or prevent the growth of undesirable microorganisms, particularly those of public health significance, shall be adequate under the conditions of manufacture, handling, and distribution to prevent food from being adulterated within the meaning of the act.



# CHEESE PLANTS

DKH	P
Pace	P
Swissland	P + R

## Farmstead

Trader's Point	P + R
Swiss Connection	P + R
Meadow Valley	R
Grassy Meadow	R
Capriole	P + R
Sunny Meadow	R



# CHEESE PLANTS

## Pending

Kikly Farm

Scherf Farms

Brichford

Sunset Acres



# Mexican Cheeses

# Queso blanco

## COMMERCIAL ITEM DESCRIPTION

### **CHEESE, QUESO BLANCO The U.S.**

**Department of Agriculture (USDA) has authorized the use of this Commercial Item Description (CID).**

<http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateM&navID=GradingCertificationandVerification&leftNav=GradingCertificationandVerification&page=DairyStandardization&description=Dairy+Standardization>



## **Mexican Cheeses**

## **Queso blanco**

Must be pasteurized, must be less than 30 days old.

Some

Collect raw milk one day, make cheese the same day, deliver to the market the next day.

Not pasteurized, not aged, pH in mid to upper 5.

At least 2 cases of Listeria in pregnant women in Marion County last year.



# QUESTIONS

Thomas Ford  
tford@boah.in.gov

